

ABSTRACT

A card or insert having a plurality of recesses for a sample preparation device, the card containing cast-in-place composite and/or non-filled structures which are useful as sorptive or reactive media or for size-based separations. Any particular card size or configuration can be used, and the inclusion of a large amount of adsorptive particles in polymer is achieved while still maintaining the membrane three dimensional structure. In a first preferred embodiment, the composite structures comprise particles entrapped within a porous polymeric substrate, and are cast in-place into a plurality of recesses in an insert for a multi-well sample preparation device, thereby providing an effective platform for high throughput micromass handling. With the appropriate selection of particle chemistry, virtually any separation or purification operation can be conducted in multiplicity, including selective bind/elute chromatography operations, on sample mass loads less than 1 microgram in volumes of a few microliters, as well as larger mass loads and volumes. Manufacturing flexibility and high throughput is achieved. The card can be configured for direct analysis of bound sample without elution.